74. The block of claim 68 wherein the ratio of the front-to-back depth of the block to the depth of the flange is at least about 6:1.

REMARKS

Applicants wish to thank the Examiner for the care taken in acting on this application. Applicants have amended the claims and added new claims 50 through 74, support for which may be found in the specification and drawings as filed.

It is believed that all claims now clearly distinguish from the prior art accordingly.

Favorable reconsideration is respectfully requested.

Applicants provide the following remarks in response to the Examiner's Action.

SIMPLICITY OF INVENTION IS DESIRABLE

Inventions come in varying degrees of complexity and varying degrees of usefulness. The measure of the value of any invention is the degree to which it solves a problem or addresses a need. In an ideal world, the ideal invention against which all the rest would be measured would be one which is simple in concept, easy to use, reliable, cost-effective, widely accepted, and stands the test of time (used year after year even though other inventions are made available). For example, consider the light bulb, the

screw jack, the thermos bottle, and the modern hairpin. Each of these inventions differs from the prior art in what appears to be only minor respects, but each represented a significant improvement over the prior art at the time it was made.

For example, shown as Exhibit A are some of the "prior art" lightbulbs that existed at the time Edison invented the modern light bulb, together with a copy of Edison's own patent. This information is taken from the book "The History of the Incandescent Lamp" by Howell and Schroeder. The similarities between the prior art and the Edison light bulb are striking, but the differences are even more significant. In much the same way, the modern hair pin (used primarily by our older generation) differs from the old style straight hair pins by the mere addition of a few new wrinkles in one of the opposed spring arms yet the few new wrinkles make an important difference to the user who still uses the new wrinkled style "bobby pin" many years after its development. Those "new wrinkles" contribute significantly to the hair-holding ability of the bobby pin.

THE CLAIMED INVENTION IS MARKED BY "ELEGANT SIMPLICITY"

The claimed invention is a unique concrete retaining wall block (and the resulting segmental retaining wall) that is likewise marked by **"elegant simplicity"**. To the best of our knowledge, no other block exists which combines so many desirable features into a single block. These features allow for:

- mass production by conventional block machines;
- easy installation;
- the ability to make straight, concave or convex segmental retaining walls using a single style or shape of block;
- the elimination of a need for a separate "topping stone";
- the elimination of a need for a separate "end stone"; and
- simplified inventory and inventory control.

PRIOR ART SEGMENTAL RETAINING WALLS

Retaining walls of one sort or another have been made for longer than the recorded history of man. Consider for a moment, walls such as the Great Wall of China, the Ancient Walls of Jericho along the Jordan River in what is, today, Israel, or the

walled cities of the Incas erected high in the Andean mountains. As technology has advanced, man has sought to replace the natural or cut stones of the past with man-made stones, including those made of concrete.

As a result, the prior art includes many different designs for retaining wall blocks. These designs have included many diverse sizes and shapes, each claiming to offer some advantage over the applicable prior art. However, none of the prior art known to the Applicants includes the unique combination of features embodied in the retaining wall block which is the subject of the present patent application. This unique combination of features results in a retaining wall block with significant advantages over the prior art. Consider for a moment, some of these important advantages.

A "ONE BLOCK" SYSTEM

A careful review of the prior art reveals that many of the concrete retaining wall blocks were designed with automatic locating or interlocking features such as various depressions or protrusions formed on the normally visible surfaces of the block. With these designs, the top row of blocks in a wall would often need to be covered with a special top or cap block to obtain a finished look to the wall. In a similar manner, these prior art

blocks often required the use of an end stone to finish the ends of the wall and hide the unfinished edges of the endmost blocks whose sides would otherwise be visible. In addition, many of the prior designs tended to work well when constructing straight walls, but needed to be cut or trimmed if the blocks were to be assembled into a curved wall.

Unlike these prior art concrete blocks used to create segmental retaining walls, the present design of the block allows for a **"one block"** retaining wall system. By that we mean that with just this one shape (i.e. using a number of blocks of a single style and size), walls having straight sections, outside radius curved sections, and inside radius curved sections can be constructed without the need to cut or break blocks to achieve the curves. Further, no top cap or end cap blocks are required to cover openings or protrusions in or from the surface of the block used to form the wall.

The one block system is attractive to the end user of the blocks, because he or she does not have to plan for, or purchase, multiple sizes and/or shapes of the blocks to build a wall.

The one block system is even more attractive to manufacturers, because they don't have to invest in multiple

molds to make multiple shapes, and they don't have to inventory or ship multiple shapes of blocks to make a single wall.

The one block system is even more attractive to vendors (e.g. the Home Depots and similar stores of the world) because they do not have to inventory, track, display, or reorder different styles of blocks needed to make a single wall.

Features of the preferred form of the present block design that make it a one block system include the following:

- the generally planar orientation of the rear surface of the block, together with a depending lower locator lip which is an extension of the rear face of the block. This straight locator lip facilitates alignment of successive rows of the blocks to form straight wall sections;
- the sidewalls are each formed by two generally planar surfaces. The first or front parts of the two sidewalls are either perpendicular to the front face or converge in the direction of the front face. The second or rear parts of the two sidewalls converge toward the rear of the blocks and have generally smooth, planar surfaces. This means that the blocks can be used to form convex walls without producing deep gaps between adjacent blocks (as viewed from the front of the wall);

- because the lower rear locator lip extends along substantially the entire rear of the block between both sidewalls, contact between the locator lip and the rear surfaces of the two immediately adjacent blocks in the next lower course is assured, thereby facilitating the construction of inside radius curves;
- in addition, because the locator lip extends from the lower rear surface of the block, and the top surface of the block is finished (it is solid and unbroken by cosmetically unacceptable depressions or protrusions), no visible upwardly-facing gaps are created through more than the uppermost row of blocks in the wall in inside or outside radius curves, and any cosmetic damage suffered by the locator lip during manufacture or shipping is hidden during the process of assembling the wall and those imperfections will not be visible in the finished wall; and
- because the top and side surfaces of the block are solid (planar or finished), without recesses, cores, or protrusions, no cap blocks are required to finish a wall.

HIGH SPEED MANUFACTURE IS POSSIBLE

By virtue of its design, the claimed block is adapted for manufacture on automated, modern, high-speed block or paver manufacturing equipment. This equipment includes a block or paver-making machine, curing equipment, splitting equipment, packaging equipment, and transport and handling equipment to move the masonry units through the various stages of the production line at production levels not practically achievable with wet molding processes.

As is known in the concrete industry, a high-speed block or paver machine forms blocks in a mold having an open top and an open bottom, with the mold resting on a moveable pallet. This pallet, commonly referred to as a "machine pallet", is typically a flat steel plate. A common dimension for the machine pallet used in a block machine in the United States is 18 1/2 inches by 26 inches. However, larger block machines, capable of handling a larger machine pallet are available. Most pallet-type paver machines use a larger machine pallet, sometimes constructed of wood. The size of the machine pallet determines how many masonry units can be produced with each cycle of the machine.

Both of these types of automated machines fill a suitable mold with a composite masonry mix. A composite masonry mix

comprises cement, sand, or other aggregate, and a relatively small amount of water. The mix may also contain coloring agents and other additives. The water content is low enough that a compacted unit formed of this material in a block machine is self-supporting and will maintain its shape in an uncured state immediately after it has been stripped from a mold, so long as it is not jostled or jarred. The water content of such a mix is low enough that additional water is often added to the uncured unit during curing to sufficiently hydrate the cement content of the mix. This additional water is generally provided in the form of mist or steam introduced in a kiln or autoclave unit. Once the mold is filled, the machine compacts the mix by a combination of vibration of the mix and downward pressure on the mix. Vibration of the mix may be accomplished by vibration of the mold, vibration of the machine pallet, vibration of the compression head, or a combination of these methods. Downward pressure is exerted by a compression head acting on the mix through the open top of the mold.

If the block is to have a "split" face, it is common to use molds which create pairs or multiple pairs of blocks joined together in a face to face relationship like Siamese twins.

Immediately after the compacting step, the molded units are stripped vertically from the mold through the open bottom of the mold. This is typically accomplished by the combined action of the compression head moving down through the mold, and the pallet moving down and away from the mold.

After a block (single or Siamese block or some multiple of a Siamese block) has been stripped from the mold, the uncured unit is self-supporting on the machine pallet. This uncured, molded unit is then transported on the machine pallet to a curing location, such as a kiln, where it is held for a suitable period of time on the machine pallet. Once it has been sufficiently cured, the unit is transported on the pallet from the curing location to a depalletizing station, where the cured unit is removed from the pallet. The machine pallet is then routed back to the molding station.

The cured unit may be the finished unit. If so, it may then be routed to a packaging station, where it may be placed on a storage and shipping pallet with a number of other blocks in a "cube". The cured unit may not be the finished unit. It may need to undergo a splitting operation to impart one or more decorative faces to the unit before it is finished. In this case, the uncured unit may first be stored and subsequently split

"off line". Preferably, it is split "in line," in which case it is transported directly from the depalletizing station to the splitting station. The finished units are then routed to a packaging station, and, subsequently, to a storage location.

These high speed block and paver machines in use today can cycle on the order of three to ten times per minute. A single mold can be used on the order of 60,000 to 300,000 cycles before it is worn out due to the abrasion from the composite masonry mix and the vibration of the machines. This process should be contrasted with a wet cast process, in which a wet, high slump concrete mix is poured into molds. This type of mix is not self-supporting, with the consequence that molded units cannot be stripped from the mold immediately after the mold step. Rather, each unit must be formed and held in its own mold until the hardening is sufficiently completed. Production speed is thus limited to the number of molds on hand, and mass production at the rates achievable with the high-speed equipment described above is not practical.

To take advantage of this high speed equipment, the block must be of such a shape that the mold can easily and quickly fill with composite masonry mix. It must be of such a shape that it can strip cleanly from the mold. It should be of such a shape

that it can be handled with a minimum of manipulation, such as flipping or spinning once it is stripped from the mold.

Features of the preferred block which facilitate its manufacture on a high speed block or paver machine include:

- the top side of the block has no protrusions or blind-hole recesses, so that it can be formed by the flat machine pallet (the block is formed top side down);
- the bottom side of the block is generally parallel to its top side, so that it is amenable to the pressure applied to it by the compression head of the machine;
- the front, back and side faces of the block are substantially vertical and solid, and perpendicular to the top and bottom faces, so that the unit can be formed in the mold, and stripped from the mold by the vertical action of the compression head and the machine pallet.

Also, because the claimed block can be molded with its top side down, resting on the steel machine pallet, and the locator lips or flanges face up during manufacture, it can be transported to the curing station in this position, cured in this position, and transported to the depalletizing station in this position. Further, the claimed blocks are typically produced as Siamese blocks (2 blocks forming a unit which is later split during the

manufacturing process). When the cured unit is depalletized, it can move down the production line on its flat top surface and into the splitting station. It does not need to be flipped to enter the splitting station, where a set of vertically-oriented splitting blades act on the unit to produce the decorative front face of the finished unit. The production line can then accumulate a number of the finished units, all still lying on their top sides, and build a cube of the units on a wooden storage and transport pallet. If the locator lips are short enough, the cubes can be built without flipping any of the blocks.

Because this block includes design features which allow it to be formed on a high-speed machine, and then cured, split and packaged without flipping the blocks over, it can be very economically manufactured, which is an important distinction from the prior art blocks incorporating lips or other integral protrusions which often require or have used other less desirable manufacturing techniques. However, the transport of the present blocks within a manufacturing plant is made somewhat more cumbersome by the converging rear sidewall portions of the block which sometimes allow the blocks to rotate when pushed.

SUITABILITY OF THE PRESENT DESIGN FOR A VARIETY OF RETAINING WALL APPLICATIONS

Another significant advantage of the design of the present block is that it can be manufactured in a variety of sizes for different applications or markets, noting that a single size is ordinarily used to make a single wall. For example, a block of this design measuring four inches high, twelve inches wide, and eight inches deep typically weighs about twenty-four pounds. In this size, the locator lip may typically be about 3/4 of an inch deep, and may extend about 1/2 inch below the lower surface of the block. Such a block is not too heavy for a home owner to easily handle, and can be used to build gravity (no anchoring matrix) retaining walls up to about two feet in height. Because this size block is relatively light, is not complicated or difficult to lay, and can be used to make walls of a height commonly needed in a residential yard, this size block is ideal for the do-it-yourself market.

A slightly larger block of the same design, having a height of six inches, a width of sixteen inches, and a depth of twelve inches, typically weighs about seventy pounds. Blocks of this

size are typically too heavy for a residential do-it-yourselfer to handle. But a professional contractor can easily handle such a block, which is of an appropriate scale for many of the more substantial residential and most commercial applications. This size block can be used to build gravity walls up to about four feet in height. Such a block may typically have a lip which is about 1 to 1½ inches deep, and extends about 3/4 of an inch below the lower surface of the block body. Blocks of this size can also be used to build much taller walls, if a geogrid anchoring matrix (a tough fabric that ties the wall to the soil behind the wall) is used in combination with the blocks. The blocks are laid in successive courses, with the first or lowest layer being laid with great care. Often the first course of blocks is partially or totally buried in the soil to provide a firm, level anchor or base. Once a course of blocks is formed (at whatever course is appropriate), a layer of geogrid material can be laid on top of the course with the geogrid fabric extending and over the fill that is behind the blocks that have already been laid. The next course of blocks is then placed on top of the geogrid. The rear lip of this next course of blocks will deform the geogrid which is then held in place by the deformation, the weight of the upper course(s) of blocks and the frictional

engagement between the geogrid and the adjacent courses of blocks. The combination of weight, friction and grid deformation creates a surprisingly strong connection between the geogrid and the blocks. Such a combination of blocks and grid, when properly engineered, can allow one to produce structurally sound walls of thirty feet or more in height.

In a still larger format, a block of this design measuring eight inches high, eighteen inches wide and twelve inches deep weighs about eighty-five pounds. This block can be economically used by professional contractors in commercial applications and typical highway - type applications where segmental retaining walls are useful for a variety of purposes including noise and traffic barriers.

NO PINS, CLIPS OR MORTAR

The design of the present block eliminates the necessity of using pins or clips to interlock the blocks in a retaining wall system. Experience has shown the integral rear lip to perform exceptionally well in both gravity based retaining wall systems (lower walls) and engineered block/geogrid combination systems (for higher walls). Elimination of pins and/or clips eliminates the cost of these added items, simplifies installation, and does away with the need of the vendor to stock pins or clips.

Inventory reduction is a major advantage. Elimination of pins as part of the wall design eliminates any concern over deterioration of the pins in the installed wall or concerns over the use of fewer pins than called for by the design. Both of these concerns are concealed in the finished wall by the pinned block design.

COMMERCIAL SUCCESS AND COPYING BY OTHERS

Because of the unique combination of features outlined above, the present block has achieved an extraordinary amount of commercial success. The Applicants' assignee currently has in excess of thirty authorized manufacturers within and without the United States making and selling blocks of this type. Since 1989, when the first blocks were sold, more than **FIFTY MILLION** (50,000,000) authorized blocks of this design have been sold.

In 1996, more than 18,000,000 of these authorized units were sold in the twenty-four pound size, which is sold primarily at retail through such outlets as Home Depot. These units are sold at retail to the end-user for about $1 to $2 per block, meaning that this style of block accounted for somewhere between $18,000,000 and $36,000,000 dollars of authorized retail business in 1996 alone, not counting the accessory materials typically associated with construction and use of these types of walls. This market segment for retaining wall blocks has been growing at

annual rates in excess of about 40% per year for the last seven years.

The remainder of the sales of authorized units have been mainly of the seventy pound size. These units are sold primarily through wholesale distribution and are professionally installed. These units sell to the end user at about $4 per block, but the ultimate installed price paid by the end user, which includes the cost of grid, aggregate, drain tile, etc. is typically about $12 to $15 per square foot on the walls built with these blocks. In 1996, authorized manufacturers sold more than 6,000,000 of these units, meaning that this block created as much as $48 million to $60 million of commercial business in 1996, not counting the associated landscaping products which are frequently also sold to the end user in these transactions.

The above figures are verifiable numbers based upon reported sales by authorized manufacturers, who have been willing to pay a significant royalty for rights to make and sell the products covered by the claims in this application. However, success invites competition. If imitation is truly the sincerest form of flattery, flattery abounds with respect to this invention. There have been a large number of copycat products introduced into the market. In nearly every region of the country, copycats have

appeared. This fact, alone, is a clear recognition of the unique value of the present block design.

Examples of the copycats include the following units, literature for which is included in Exhibit C of this response at Tabs 1 through 11:

- NurseryStone angled wall unit (26 pounds) (TAB 1);
- Castlewall by Oldcastle (27 pounds) (TAB 2);
- 4 Inch Landscape Block by New Holland (22 pounds) (TAB 3);
- Easi-Wall by Decor (25 pounds) (TAB 4);
- Keystone Garden Wall (27 pounds) (TAB 5);
- Keystone Intermediate (75 pounds) (TAB 6);
- Cottage Stone by Rockwood (26 pounds) (TAB 7);
- CottageStone (producer not identified, but believed to be Mutual Materials) (about 25 pounds) (TAB 8);
- ManorStone (producer not identified, but believed to be Mutual Materials) (about 65 pounds) (TAB 9);
- LondonStone (solid unit and 4 inch) by New London Concrete Products (about 70 pounds) (TAB 10);
- Decrowall by New London Concrete Products (25 pounds) (TAB 10);

- Landscapes by Bark River Concrete (weight unknown, but probably about 70 pounds) (TAB 11).

This is not an exhaustive list of copycats by any means. Rather, this information is provided to demonstrate that with all of the prior art to choose from, all of these units appeared on the market ***after*** Applicants invented the block described in the present application, and after Applicants' assignee began to commercialize blocks of this design. Applicants do not know the extent of the sales of these copycat products, but they could easily equal the authorized sales recounted above. If this is so, then the size of the market created by the Applicants' invention is at least sixty-six million dollars per year, and may be as much as **One Hundred Thirty Million Dollars** or more per year.

The ***elegant simplicity*** of the present block, coupled with the extraordinary commercial success and copying activity are compelling evidence of the patentability of the claimed inventions. Those skilled in the art have been motivated to make the better block by both the large and increasing demand for segmental retaining wall products, and the long period of time over which products of this general type have been in existence (at least as early as 1943, as evidenced by the Schmitt U.S.

Patent No. 2,313,363). Yet, those skilled in the block making art have continued to develop and make more complicated segmental retaining wall systems (e.g. those involving complex surface structures, pins or clips, and cap stones or end stones). In spite of this, the present Applicants have discovered that a ***simpler*** and ***more elegant*** block design satisfies the markets needs and does so with numerous advantages. If the identical block was present in the prior art, or the level of ordinary skill in the art was adequate to achieve the present results, a comparable design to satisfy the market needs would have surfaced long before Applicants made their invention. It did not. And yet, when Applicants introduced it, the block made a huge commercial impact and has been widely copied.

THE REJECTION

With these factors in mind, let us now turn to the rejection. The claims were rejected under §103 as being unpatentable over Mazzarese (U.S. 4,565,043) in view of Gravier (U.S. 4,909,010). The Applicants respectfully submit that there is no suggestion within these references to make the combination advanced by the Examiner. Moreover, the differences between the claimed retaining wall block and these two references are so numerous, and significant, that it would not have been obvious

from the combined teaching of these references to make the claimed invention.

Mazzarese shows a rectangular building block. According to the specification, this block may be a cinder block, a concrete block, a glass block, or a plastic block. It includes a downwardly-facing projection at each of the front lower corners and at the midpoint of the rear lower edge. It includes corresponding, upwardly-facing recesses at each of the front upper corners and at the midpoint of the rear upper edge. A plurality of these blocks can be vertically stacked for storage and/or shipping with the downwardly-facing projections of an upper block nesting in the upwardly-facing recesses of a lower block. They can be laid-up into a straight, vertical wall with a running bond pattern, if the courses are alternately flipped front-for back.

Because it lacks the features of the block described and claimed herein, the Mazzarese block is not a landscape/retaining wall block, let alone a "one block" system for landscape application. Because of its own unique features noted above (e.g. the spaced "feet"), the Mazzarese block cannot be used to build serpentine walls. Further, the Mazzarese block cannot be

manufactured at high speeds in a modern concrete block or paver machine.

Turning to the pending independent claims, the Mazzarese block lacks at least the following elements of amended claim 1:

- the generally planar upper surface which is generally solid and continuous across its entire extent;
- the lower surface with a smaller area than the upper surface; and
- the two-part sidewall surfaces, and the angular orientation of the two sidewall parts with the front and rear surfaces.

It lacks at least the following elements of amended claim 30:

- the rearwardly converging side face portions;
- the substantially solid and continuous upper face, which has a greater area than the gross area of the lower face.

It lacks at least the following elements of new claim 56:

- the capacity to form a retaining wall with set back courses;
- the block body and integral lip formed in a mold with an open top and an open bottom seated upon a generally flat pallet by the process described in the claim;

- the multiple part (usually two-part) sidewalls and the angular orientation of them with the front and rear surfaces;
- the block body upper surface formed by the pallet, and being substantially smooth, substantially solid, and substantially continuous across its whole extent; and
- the block body lower surface formed by a compression head, and being substantially planar and substantially smooth as a result.

It lacks at least the following elements of new claim 66:

- a solid and generally planar top face;
- a front face with opposed diverging portions;
- opposed solid side faces which converge as they extend towards the rear face of the block; and
- a setback-establishing locator lip.

It lacks at least the following elements of amended claim 69:

- suitability for constructing straight and curved retaining walls;
- two-part sidewall surfaces as described in the claim;
- a solid top surface; and

- a flange for establishing a setback.

Gravier shows a retaining wall block having an upwardly-facing flange on the top edge of its front face. It is not a one-block system. Gravier suggests that blocks of three different shapes (a block with rearwardly converging sidewalls for outside radius wall sections; a block with rearwardly-diverging sidewalls for inside radius wall sections, and a block with parallel sidewalls for straight wall sections) be used to build a serpentine wall. Because the block has upwardly-opening cores, a cap block is desirable to finish a wall. Because the lip of the block is on the front face, any damage to the lip during transportation will show up in the face of the wall. Because the lip is upwardly facing and on the front of the block, it provides a catch basin for any water. This is especially troubling in areas affected by freeze/thaw cycles.

With regard to the pending independent claims, the Gravier block lacks at least the following elements of amended claim 1:

- the generally planar upper surface which is generally solid and continuous across its entire extent;
- the lower surface with a smaller area than the upper surface (the reverse is true of Gravier);

- the two-part sidewall surfaces, and the angular orientation of the two sidewall parts with the front and rear surfaces; and
- the flange extending from the lower edge of the back surface of the block, having a setback surface extending toward the front surface of the block, and a locking surface extending from the plane of the block lower surface.

It lacks at least the following elements of amended claim 30:

- the front face joining the upper and lower faces, which is substantially perpendicular to the upper and lower faces;
- the flange extending below the lower face of the block, having a rear face which is substantially an extension of the rear face of the block, and having a front locking surface which intersects the lower face of the block;
- the substantially solid and continuous upper face, which has a greater area than the gross area of the lower face.

It lacks at least the following elements of new claim 56:

- the generally vertical front surface (the front surface of Gravier includes a larger, non-vertical beveled portion);
- the two-part sidewalls and the angular orientation of them with the front and rear surfaces;
- the block body upper surface formed by the pallet, and being substantially solid, and substantially continuous across its whole extent;
- as a result, the block body lower surface formed by a compression head; and
- a lower, rear locator lip.

It lacks at least the following elements of new claim 66:

- a solid and generally planar top face;
- a front face which is generally perpendicular to the top and bottom faces, and which includes opposed portions which diverge as they extend towards the rear face of the block;
- side faces which extend from opposed diverging portions of the front face to the rear face; and
- a lower rear locator lip formed integrally with the bottom face of the block, and located adjacent to the rear face of the block, so that the lip comprises a

rear face which is an extension of the block rear face below the bottom face of the block.

It lacks at least the following elements of new claim 69:

- a generally vertical front face;
- a flange or lip integrally formed with the block and extending downwardly from the lower surface of the block along intersection of the lower surface of the block with the back surface of the block to a point below the lower surface of the block;
- a block lower surface having a smaller surface area for block-to-block contact than the surface area of the block upper surface;
- generally vertical two-part left and right sidewall surfaces of the block, each of the left and right sidewall surfaces comprising a substantially planar first or front part and a substantially planar second or rear part, the first parts having surfaces which do not diverge relative to each other in the direction of said block front surface, and the second or rear parts having surfaces which converge in the direction of said block back surface; and

- the top surface of the block being substantially solid and continuous across its entire extent.

As shown in the foregoing recitation, both Mazzarese and Gravier lack a number of important features described in the pending claims. Many of the features lacking in Mazzarese are also lacking in Gravier. For this reason alone, it is respectfully submitted that a combination of these two references could not render the claimed inventions obvious.

The Examiner has indicated that it would have been obvious to arrange the downwardly-facing projections 28 of Mazzarese across the entire back surface of the block, as taught by Gravier, for his flange 17a. Applicants respectfully disagree. There is no suggestion in Mazzarese that its downwardly-facing projections are inadequate for the intended use. Moreover, since Gravier does not teach any downwardly-facing projections, Gravier does not teach that the downwardly-facing projections of Mazzarese should be modified in any respect. If anything, Gravier must be characterized as teaching away from any use of downwardly-facing projections. Gravier states that its upwardly-directed portion is an improvement over downwardly-facing rear lips, in that it is intended to give a decorative effect to the face of the block. The intended decorative appearance would not

be obtained with a lower, rear lip, and so it must be concluded that Gravier is not suggestive of such a construction.

Further, if the downward "feet" of Mazzarese were replaced with some type of lip, the resulting modified Mazzarese block would presumably include a matching recess in the upper face of the block and that is very different from the "one block", setback system described and claimed herein.

OTHER PRIOR ART

Enclosed is a Supplemental Disclosure Statement listing additional prior art which has come to the attention of the Applicant. Further, if the Examiner has not already done so, he is requested to review the prior art cited by both the Examiner and the Applicant in each of the Applicant's related patents and applications including specifically:

U.S. Patent Application Serial No. 413,400 filed September 28, 1989;

U.S. Patent Application Serial No. 413,050 filed September 28, 1989;

U.S. Patent No. 5,062,610 issued November 5, 1991;

U.S. Patent No. 5,294,216 issued March 15, 1994; and

U.S. Patent No. 5,589,124 issued December 31, 1996.

Claims to the present invention have been allowed and granted in Australia and Canada. In Australia, the claims were attacked in an opposition proceeding. In that opposition, the claims were said to lack novelty in view of U.S. Patent No. 2,313,363 (Schmitt). A copy of this reference is enclosed. That patent describes a wet cast, rear-lipped, rectangular block. It lacks the features of the present invention that facilitate the construction of curved walls-the rearwardly-converging sidewalls, and, more specifically, the two-part, rearwardly converging sidewalls. The opposer in Australia asserted that the text at col. 2, lines 33-39 remedies this deficiency in the Schmitt disclosure. That text reads,

> The block 15 may be made in various designs and suitable shapes. For instance the block 15 can be made longitudinally straight which is most frequently required for straight retaining walls. Longitudinally angular or curved blocks would be used for curved walls, turns or corners.

The Australian hearing officer commented as follows on this issue:

> On this issue I agree with [applicant's attorney]. I am unable, and have no good reason, to conclude that the U.S. specification by referring to "longitudinally angular" blocks, meant blocks having the two part sidewall surfaces arranged as claimed. The expression itself suggests to me that the front face and rear face are angled to each other rather than being parallel as for the "longitudinally angular" blocks, meant blocks of drawings. I therefore conclude that the petty

patent claims do not lack novelty in view of U.S. Patent No. 2,313,363.

The Schmitt patent was also presented to the Canadian examiner. In each case, the claims were allowed. Schmitt does not teach the present invention. Those skilled in the art had more than forty years to modify Schmitt to meet the market needs, but no one produced the current block designs. It was not until more than 46 years after the publication of the Schmitt patent that blocks of the current claimed design were introduced into the market by applicants' assignee and gained immediate commercial success.

There were other references cited by the opposer in Australia. Specifically, these were:

- U.S. Patent No. 4,229,123 (Heinzmann);
- U.S. Design Patent No. 298,463 (Forsberg);
- Swiss Patent No. 657,172 (Tobag);
- European Patent No. 215,991 (Rossi); and
- European Patent No. 362,110 (Rossi).

Copies of these references are also enclosed. None of these references was asserted by the opposer to anticipate the Australian claims, and a quick perusal of them will reveal that

none of them invalidates the claims presented in this application, either.

In Australia, these issued claims are presently the subject of infringement litigation. In the course of that litigation, other assertedly material prior art has been raised by the defending parties. Applicants are submitting that art together with this response for the Examiner's consideration.

Included among those references are three which are alleged include all of the features of the counterpart Australian claims; namely French Patent No. 2,622,227, Swiss Patent No. 663,437, and U.S. Patent No. 2,313,363 (Schmitt). Copies of these references are enclosed.

The Schmitt reference has been previously discussed.

The French '227 patent shows rear-lipped retaining wall blocks in Figures 1 - 4, and Fig. 6. The blocks shown in these figures lack several important features of the claimed blocks. They do not have the two part sidewall construction, including rearwardly-converging sidewall portions, so they are not well adapted to form serpentine walls. The sharply tilted back orientation of the front face makes it difficult to make the block of Figs. 1 - 4 on high speed equipment. If the unit was narrow enough, the block shown in Figs. 1 - 4 could conceivably

be made on a high-speed block machine, but it would have to be cast on its side, because the pre-split unit has lips on both top and bottom surfaces, and because the splitting channels to produce the angled front face are set at an angle with respect to the planes of the top and bottom surfaces of the unit. The combination of the sharply tilted-back face and the anchoring holes through the body of the block shown in Fig. 6 makes it commercially impractical to make that block on modern high-speed equipment.

The blocks shown in this patent lack at least the following features of independent claim 1:

- a lower surface with a smaller area than the upper surface; and
- the two-part sidewall surfaces, comprising rearwardly-converging sidewall portions, and the forwardly-converging sidewall portions.

They lack at least the following features of independent claim 30:

- a front face which is substantially perpendicular to the top and bottom faces;
- side faces with rearwardly-converging portions; and

- an upper face with a greater gross area than the lower face.

They lack at least the following features of independent claim 56:

- an upper surface formed by the machine pallet;
- a lower surface formed by the compression head of the block machine;
- a front surface which is generally perpendicular to the upper and lower surfaces;
- sidewalls formed by the vertical sidewalls of the mold;
- sidewall first parts which intersect the front surface at an angle of less than 90°);
- sidewall second parts extending from the sidewall first parts; and
- a locking surface on the locator lip formed by a compression head.

They lack at least the following features of independent claim 66:

- a front face which is generally perpendicular to the top and bottom faces, and which includes opposed portions which diverge as they extend towards the rear face of the block; and

- opposed solid side faces which are generally perpendicular to the top and bottom faces, each of the solid side faces extending from an opposed diverging portion of the front face to the rear face, the side faces converging as they extend towards the rear face.

They lack at least the following features of independent claim 69:

- the capability to be mass produced by automated block-making machines;
- the generally vertical first front surface and a generally vertical back surface which are substantially parallel to each other and are generally perpendicular to the upper and lower surfaces of said block; and
- the generally vertical two-part left and right sidewall surfaces, each of the left and right sidewall surfaces comprising a substantially planar first or front part and a substantially planar second or rear part, the first parts having surfaces which do not diverge relative to each other in the direction of the block front surface, and the second or rear parts having surfaces which converge in the direction of the block back surface.

The Swiss '437 patent also shows several embodiments of rear-lipped retaining wall blocks, but, like all of the other prior art of which the Applicants are aware, the blocks shown in this Swiss patent lack important features of the claimed blocks. The first embodiment has parallel sidewalls. This block could be made in a high-speed block machine, if it were made on its side. It would have to be made on its side, because the core extending from side-to-side through the block, and the non-vertical portion of the front face would not readily accommodate another casting orientation. Since this block has parallel one-part sidewalls, it is not well-adapted to making serpentine walls. And since it has open cores extending from side-to-side, it cannot be used as a one block system for constructing finished walls since any exposed ends need to be covered for cosmetic reasons.

This embodiment of the Swiss patent lacks at least the following features of claim 1:

- a front face which is substantially paralleled to the rear face;
- a lower surface with a smaller area than the upper surface;

- the two-part sidewall surfaces, comprising rearwardly-converging sidewall portions, and the forwardly non-diverging sidewall portions; and
- sidewall surfaces that are solid and substantially continuous.

It lacks at least the following features of independent claim 30:

- a front face which is substantially perpendicular to the top and bottom faces;
- side faces with rearwardly-converging portions;
- an upper face with a greater gross area than the lower face; and
- side faces which are substantially solid and continuous across the entire extents.

It lacks at least the following features of independent claim 56:

- an upper surface formed by the machine pallet;
- a lower surface formed by the compression head of the block machine;
- a front surface which is generally perpendicular to the upper and lower surfaces;

- sidewalls formed by the vertical sidewalls of the mold; and
- sidewall first parts which intersect the front surface at an angle of less than 90°;
- sidewall second parts extending from the sidewall first parts; and
- a locking surface on the locator lip formed by a compression head.

It lacks at least the following features of independent claim 66:

- a front face which is generally perpendicular to the top and bottom faces, and which includes opposed portions which diverge as they extend towards the rear face of the block; and
- opposed solid side faces which are generally perpendicular to the top and bottom faces, each of the solid side faces extending from an opposed diverging portion of the front face to the rear face, the side faces converging as they extend towards the rear face.

It lacks at least the following features of independent claim 69:

- the generally vertical first front face;
- the generally vertical two-part, solid left and right sidewall surfaces as described in the claim;

- a lower surface having a smaller surface area than that of the upper surface; and
- both sidewall surfaces of the block being substantially solid and continuous across their entire extents.

The second embodiment shown in the Swiss patent has converging sidewalls, so that it is adapted to making serpentine walls. Unfortunately, the combination of the converging sidewalls, the side-to-side cores, and the non-vertical portion of the front face render this embodiment incapable of manufacture on a high-speed block machine. It must be manufactured in a wet cast process. And, like the first embodiment, the side-to-side cores mean that it cannot be used as a one block system for constructing finished walls.

The third embodiment has a complex rear lip configuration, which also renders it manufacturable only by a wet cast process.

These embodiments of the Swiss patent lack at least the following elements of amended claim 1:

- a front face which is substantially parallel to the rear face;
- a lower surface having a smaller area than the upper surface;
- solid sidewalls.

These embodiments of the Swiss patent lack at least the following elements of amended claim 30:

- a front face which is substantially perpendicular to the upper and lower faces;
- the solid side faces; and
- an upper face with a greater area than that of the lower face.

These embodiments of the Swiss patent lack at least the following elements of new claim 56:

- manufacturability in a high-speed block machine, including the capacity to be made by the steps described in the claim, including, for example, a step wherein an uncured unit is self-supporting on a machine pallet;
- a generally vertical front surface;
- sidewall first parts that intersect the front surface at an angle of less than ninety degrees; and
- solid sidewalls.

These embodiments of the Swiss patent lack at least the following elements of new claim 66:

- a front face which is generally perpendicular to the top and bottom faces and includes opposed diverging portions;
- solid side faces; and

- side faces extending from opposed diverging portions of the front face.

These embodiments of the Swiss patent lack at least the following elements of new claim 69:

- capacity for mass production on automated block-making equipment;
- a generally vertical front face;
- a lower surface with a small surface area than the upper surface; and
- solid side surfaces.

In addition to the art cited above, the Examiner is reminded to review the art cited in the parent applications to the present application, and his attention is invited to the enclosed IDS. None of these references taken individually, or in any reasonable combination, teaches or fairly suggests Applicants invention as claimed.

SUMMARY

The Applicants have made an invention which is a unique concrete retaining wall block (and the resulting segmental retaining wall) that is marked by "elegant simplicity". As noted earlier, to the best of our knowledge, no other block exists

which combines so many desirable features into a single block. These features allow for:

- mass production by conventional block machines;
- the ability to make straight, concave or convex segmental retaining walls using a single style or shape of block;
- the elimination of a need for a separate "topping stone";
- the elimination of a need for a separate "end stone"; and simplified inventory and inventory control.

Under the circumstances, reconsideration and allowance of all claims is requested.

Respectfully submitted,

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CCS/WPCTR/wm

EXHIBIT B
VERIFICATION OF THIS RESPONSE

State of Minnesota

County of Hennepin

Glenn Bolles, states as follows:

1. He is President of Anchor Wall Systems, Inc., the assignee of record of the present application and the inventions described therein.

2. He has more than 14 years of experience in the concrete block industry.

3. In that time, he has operated block manufacturing plants and founded Anchor Wall Systems, Inc. and has been closely involved in the development of the segmented retaining wall business in the USA and in other parts of the world.

4. Anchor Wall Systems, Inc. has licensed its system of making segmented retaining wall blocks throughout the USA and in a growing number of foreign countries. As a result, he is personally familiar with the processes used to make blocks and is personally familiar with the market for blocks of this type.

5. To the best of his present knowledge and belief, all statements contained in this response under the heading "Remarks" from the section entitled "The Invention is Marked by Elegant Simplicity" to the section entitled "The Rejection" relating to the advantages of the present block and its commercial success are true.

Glenn Bolles

Glenn Bolles

On this 6th day of May, 1997 Glenn Bolles personally appeared before me and executed this Verification under Oath.

Notary Public

KAY HERCEG
NOTARY PUBLIC-MINNESOTA
My Commission Expires Jan. 31, 2000